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A new species of *Chaetochalara* on decaying leaves from Brazil

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Abstract —*Chaetochalara mutabilis* sp. nov., found on decaying needle-like leaves of *Araucaria angustifolia* and leaves of *Calophyllum brasiliense,* is described and illustrated. The new species is characterized by erect septate dark brown setae (most of which develop into distinct single dark brown conidiophores) and cylindrical 1-septate hyaline conidia. A key to *Chaetochalara* species is also provided.

Key words — asexual fungi, leaf litter, taxonomy, tropical fungi

Introduction

During research on conidial fungi associated with decaying leaves of *Araucaria angustifolia* and *Calophyllum brasiliense*, an interesting fungus was collected. Its setae, conidiogenesis, and conidial features clearly suggest placement within the genus *Chaetochalara* B. Sutton & Piroz. (Nag Raj & Kendrick 1975, Taylor et al. 2001). However, the fungus shows remarkable differences from all previously described species of *Chaetochalara* and therefore is described as new.

Materials & methods

Samples of decaying leaves of *A. angustifolia* and *C. brasiliense* were collected and placed in paper bags. In the laboratory the samples were placed in Petri dish moist chambers and stored in a polystyrene box with sterile water plus glycerol at 25°C for 30 days (Castañeda-Ruiz 2005). Mounts of slides were prepared in PVL (polyvinyl alcohol,

lactic acid, and phenol), and micrographs were obtained with an Olympus microscope BX 51. Specimens were deposited in the Herbarium of the State University of Feira de Santana, Bahia, Brazil (HUEFS).

Taxonomy

Chaetochalara mutabilis C.R. Silva, S.S. Silva, Gusmão & R.F. Castañeda, **sp. nov.** Fig. 1

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Differs from all other *Chaetochalara* spp. by its dimorphic conidiogenous cells and its changeable setae, most of which develop into distinct unbranched multiseptate dark brown conidiophores.

Type: Brazil. Bahia State: Piatã, Serra da Tromba, 13°05′S 41°50′W, alt. 1263 m, on decaying leaves of *Calophyllum brasiliense* Cambess. (*Calophyllaceae*), 17.III.2014, coll. C.R. Silva (**Holotype**: HUEFS 210434).

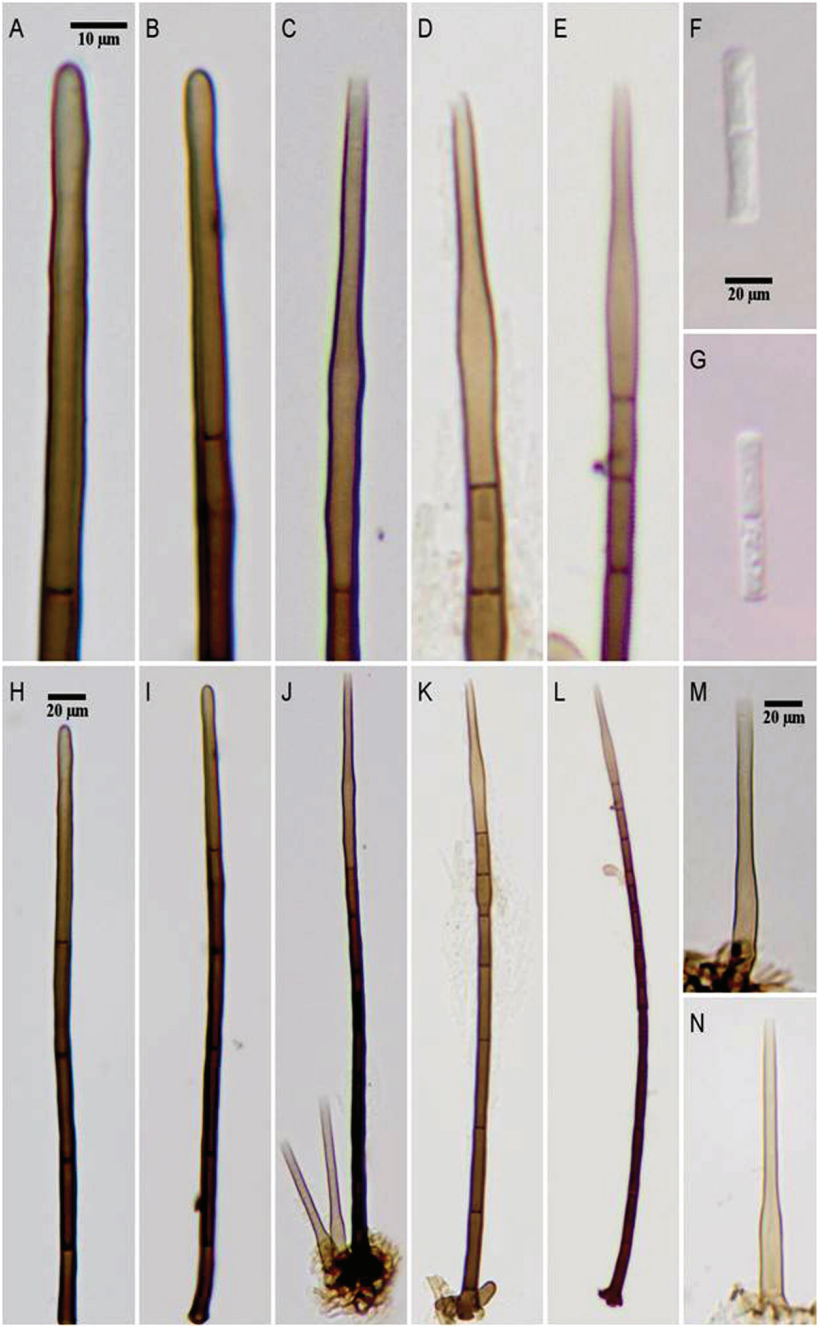
Etymology: Latin, *mutabilis*, referring to the changeable setae, which become conidiophores.

Colonies on the natural substrate effuse, hairy, brown. Mycelium superficial and immersed. Setae erect, straight or slightly flexuous, cylindrical or subcylindrical, 5–14-septate, 150–345 × 4–8 µm, dark brown, pale brown toward the apex, most developing into a distinct, unbranched, dark brown conidiophore. Conidiophores distinct, single, erect, straight to slightly flexuous, unbranched, associated with the base of setae, ampulliform, pale brown, 1–3-septate, 40–82 × 4–8 µm, smooth. Conidiogenous cells phialidic, dimorphic: i) obclavate to subcylindrical, pale brown, 42–58 µm long; venter subcylindrical, 17–22 × 4–8 µm; collarette cylindrical 25–37 × 3 µm; gradual transition from venter to collarette; ii) ampulliform, pale brown, 24–57µm long, venter subcylindrical, 12–25 × 4–6 µm, collarette cylindrical 12–33 × 3 µm, gradual transition from venter to collarette, arising from transformed conidiophores and originating at the apical cell of the setae. Conidia basocatenate, cylindrical, slightly rounded at the apex and truncate at the base, 1-septate, hyaline, smooth, 10–15 × 2–2.5 µm.

Additional specimen examined: **BRAZIL. Rio Grande do Sul State**: São Francisco de Paula, Floresta Nacional de São Francisco de Paula 29°25′S 50°23′W, alt. 838 m, on decaying needle-like leaves of *Araucaria angustifolia* (Bertol.) Kuntze (*Araucariaceae*), 9.IX.2014; coll. S.S. Silva (HUEFS 210433).

Notes: *Chaetochalara* was erected by Sutton & Pirozynski (1965) with the type species *C. bulbosa* B. Sutton & Piroz. The genus, which is distinguished

Fig. 1. *Chaetochalara mutabilis* (holotype, HUEFS 210434). A–B. Apex of setae. C–E. Transformed setae, originating conidiogenous cells at the apex of conidiophores (type ii). F–G. Conidia. H–I. Setae. J. General aspect of setae, conidiophores and conidiogenous cells (types i & ii). K–L. Conidiophores. M–N. Conidiogenous cells (type i). Scale bars: A-E=10 µm; F-N=20 µm.


A
10 µm
B
C
D
E
F
20 µm
G
H
20 µm
I
J
K
L
M
20 µm
N

from *Chalara* (Corda) Rabenh. by the presence of setae, currently comprises eight species (Sutton & Pirozynski 1965, Pirozynski & Hodges 1973, Sutton & Hodges 1976, Taylor et al. 2001). *Chaetochalara ramosa* Nag Raj & W.B. Kendr. and *C. setosa* (Harkn.) Nag Raj & W.B. Kendr. resemble *C. mutabilis* in their conidial septation, but *C. ramosa* has a marginal conidial frill, *C. setosa* has an abrupt transition from venter to collarette, and both species have shorter (25–38 µm) phialides.

Key to *Chaetochalara* species

1. Setae not developing into conidiophores 2
1. Setae mostly developing into distinct cylindrical 5–14-septate conidiophores; phialides dimorphic, smooth, either ampulliform (42–58 µm long) or obclavate to subcylindrical (24–57 µm long); conidia cylindrical, 1-septate, 10–15 × 2–2.5 µm . . . . . *C. mutabilis*
2. All conidia unicellular 3
2. All or some conidia septate 4
3. Phialides narrowly ampulliform, smooth, 21–37 µm long; conidia 5–9 × 1.5–2 µm . . . . . *C. africana*
3. Phialides ampulliform, smooth, 21–37 µm long; conidia 6.5–10 × 1.5–2 µm . . . . . *C. bulbosa*
4. Conidia 0–1-septate, 10–18 × 4–5 µm; phialides subcylindrical to obclavate, 30–45 µm long, smooth . . . . . *C. cladii*
4. All conidia septate 5
5. Phialides verruculose 6
5. Phialides smooth 7
6. Phialides ampulliform, 48–77 µm long; conidia 10–27 × 2.5–4 µm . . . . . *C. aspera*
6. Phialides subcylindrical, 70–90 µm long; conidia 9–14 × 5–7 µm . . . . . *C. proteae*
7. Phialides arising as branches of short conidiophores, subcylindrical, 25–38 µm long; conidia 9–14 × 3–4.5 µm . . . . . *C. ramosa*
7. Phialides not arising as branches of short conidiophores 8
8. Phialides ampulliform, 25–38 µm long; conidia 11–15 × 1.5–2.5 µm . . . . . *C. setosa*
8. Phialides long lageniform, 80–100 µm long; conidia 16.5–19 × 2.5–3 µm . . *C. laevis*

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